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# Examining the Association between Emotional Intelligence and Leadership Style in Nurse Leaders

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Examining the Association between Emotional Intelligence and Leadership Style  
in Nurse Leaders

Presented to the Faculty of the School of Nursing

The George Washington University

In partial fulfillment of the requirement for the degree of

Doctor of Nursing Practice

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### Abstract

**Background:** Emotional intelligence (EI) and transformational leadership (TL) style are linked to leadership effectiveness. At our organization, there is a gap in knowledge around EI and TL in our nurse leaders.

**Objective:** To assess the relationship of EI and TL among nurse leaders, appraise participants ability to accurately define EI, assess their belief that education can increase the level of EI, and discover the learning method preference to increase their level of EI.

**Methods:** We used a descriptive-comparative survey design with a sample of nurse leaders working at a Northeast academic medical center. Participants included clinical nurse managers, nurse administrators, patient care directors, and directors of nursing. Data were collected using a demographic questionnaire, the Trait Emotional Intelligence Questionnaire (TEIQue-SF), and the Multifactor Leadership Questionnaire 5X (MLQ-5X). A Pearson correlation was calculated using the mean scores on the TEIQue-SF and MLQ-5X. Frequencies and percents were calculated for the ability to define EI, and beliefs and preferences related to EI education.

**Results:** Fifty-six of 127 (44%) nurse leaders responded. A significant, positive correlation ( $r = 0.523, p < .001$ ) was found between the mean TEIQue-SF scores ( $M = 5.69, SD = 0.51$ ) and MLQ-5X ( $M = 3.25, SD = 0.35$ ). Most participants were unable to accurately define EI ( $n = 42, 75\%$ ), believed that education would increase EI ( $n = 45, 80.4\%$ ), and preferred classroom learning methods ( $n = 31, 55.4\%$ ).

**Conclusion:** The correlation between EI and TL in nurse leaders supports further education and training in EI to improve patient outcomes.

### **Background**

Nurse leaders are challenged to create a positive work environment, promote empowerment, improve clinical outcomes, and increase job satisfaction among their clinical team. Clinical skill, expansive knowledge, and extensive experience are drivers for superior performance but not the only component of an outstanding nurse leader. Research has shown that the attributes of an effective leader have not been linked solely to the level of a leader's intelligence (Goleman, 2004).

### **Emotional Intelligence**

Goleman (2004) asserts that intelligence and technical skill are the minimum requirements for the role of executive leadership. However, he believes it is the extent of a leader's emotional intelligence (EI) that determines the leader's success. A worker may be extensively trained and have brilliant analytical ideas; however, these skills do not define a good leader (Goleman, 2004). Goleman (2004) theorized that effective leaders demonstrate five components of EI, which include self-awareness, self-management, social awareness, motivation, and empathy. His research has suggested that senior level management relies on EI at increasing higher rates compared to lower level managers (Goleman, 2004).

Mayer, Savoy, and Caruso (2004) defined emotional intelligence as “the capacity to reason about emotions, and of emotions to enhance thinking. It includes the abilities to accurately perceive emotions, access and generate emotions to assist thought, understand emotions and emotional knowledge, and reflectively regulate emotions so as to promote emotional and intellectual growth” (p.197). Petrides and Sevdalis (2009) defined EI as an individual's perception of their emotional aptitude. Coladonato (2017) found that empathy and self-awareness were considered two of the most influential indicators of EI in nurse leaders.

Emotionally intelligent leaders easily connect with others (Harvard Manage Mentor, 2017). Through self-awareness and self-management, leaders with high EI understand their own emotions and demonstrate the ability to act rationally. They exhibit social awareness and relationship management through their interactions with others. Operational traits of EI include an understanding of one's feelings and the ability to evaluate one's strengths and weaknesses realistically. Rational thinking with limited emotional impulses, high standards, and being attuned to others' opinions and concerns are elements of EI. A leader with a high level of EI understands the impact of office relationships, and fosters an environment where others can showcase their talents and are encouraged to achieve goals (Harvard Manage Mentor, 2017).

### **Transformational Leadership**

In the literature, transformational leadership (TL) is associated with EI. Transformational leadership is defined as a leadership style that inspires and motivates employees toward organizational change through shared vision and values (Bass & Avolio, 1993). Four characteristics of TL are known as the "4Is" which include, "idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration" (Bass & Avolio, 1993, p.112). Idealized influence refers to a leader's ability to build respect in others, promote pride, and inspire others to go above and beyond to support the goals of the team (Bass & Avolio, 1993; Echevarria, Patterson, & Krouse, 2017). Inspirational motivation is a behavior exhibited by leaders that inspire and motivate others. Intellectual stimulation refers to a leader's aptitude to incite creativity and innovation in their direct reports. Individualized consideration signifies the leader as a mentor or coach who tailors his or her attention to the specific needs of the individual to foster growth and development (Echevarria et al., 2017).

A leadership style influences the performance of followers, patient outcomes, work culture, and job satisfaction (Spano-Szekely, Griffin, Clavelle, & Fitzpatrick, 2016). Research has demonstrated that there is a definite correlation between a well-developed level of EI and TL (Spano-Szekely et al., 2016). Emotional intelligence and TL style are linked to leadership effectiveness. However, there is still limited research describing the relationship between EI and TL in nurse leaders (Tyczkowski, Vandenhouten, Reilly, & Kubisch, 2015). An understanding of the relationship between these two concepts may direct leadership professional development to focus on education to enhance EI with an outcome of creating transformational leaders.

### **Problem Statement**

The healthcare environment has become increasingly more complex with an increased demand for quality care at a reduced cost. At our large academic medical center in the Northeast United States, our nurse leaders, which include clinical nurse managers, patient care directors, nurse administrators, and directors of nursing are under more stress than ever to deliver high-quality patient outcomes, engage their staff, and increase patient satisfaction. The expectation is that our nurse leaders are visionaries with the ability to outperform their competitors while maintaining a positive work environment for their teams.

In industry, leaders with a high-level of EI maximize performance in both themselves and their teams (Goleman, 2004). Transformational leaders convey a vision, make effective decisions, empower followers, remain calm, focus on performance improvement, and gather input from others. In nursing literature and at our organization, there is a gap in knowledge around the relationship between EI and TL in nurse leaders. By exploring nurse leaders' level of EI and understanding its relationship to TL style, nurse leaders at our academic medical center will demonstrate leadership behaviors that will inspire a culture where nurses feel valued,

respected, and motivated to contribute to the organization's mission to provide high-quality, affordable care. Furthermore, bodies of literature around EI identify a critical opportunity for many nurse leaders with low EI to learn strategies to improve this competency to become an organization's most valuable asset (Goleman, 2004). Therefore, studying the relationship between EI and TL in this academic medical center may increase the body of nursing knowledge and support future education for current and aspiring nurse leaders.

### **Purpose**

The purpose of our study was to expand previous knowledge examining the level of EI and how it relates to TL style among nurse leaders. Two surveys with estimated reliability and validity were used to measure EI and TL. The knowledge gained from this study will be used to direct future research around EI and TL and develop training to improve the level of EI in nurse leaders. Also, the information gained from our study may guide new hiring practices to be instituted by nurse recruiters using EI as a measure of leadership potential when hiring new leaders for our organization.

### **Aims**

The specific aims of our study were to:

- Aim 1: Measure the level of EI and TL in nurse leaders at a large academic medical center in the Northeast using reliable and valid instruments.
- Aim 2: Evaluate if there is a relationship between EI and TL in nurse leaders.
- Aim 3: Appraise if nurse leaders can accurately define EI from a selection of four choices with one definition reflecting the best answer.
- Aim 4: Assess if nurse leaders believe that an increase in their education and training will increase their level of EI.

Aim 5: Assess what preference nurse leaders have about learning methods to increase their level of EI.

### **Research Questions**

We assessed the following research questions:

Question 1: Is there a relationship between EI and TL mean scores in nurse leaders at a large academic medical center in the Northeast?

Question 2: Are nurse leaders able to accurately define EI?

Question 3: Do nurse leaders believe that education and training will increase their level of EI?

Question 4: What preference do nurse leaders have about learning methods to increase their level of EI?

### **Significance**

Historically, EI and its relationship to leadership style and job performance have been studied in many forums including education, finance, and the oil and railroad industries. The TL studies demonstrated that leaders with high EI led divisions that significantly outperformed their yearly goals (Goleman, 2004). Cost-effectiveness, high-quality product, employee satisfaction, and outstanding customer service made up the foundation of all business models with the goal to outperform the competitor. The EI of a leader in industry is linked to the success of the corporation (Goleman, 2004). Leaders with high EI comprehend the political and social principles within an organization (Batool, 2013). Furthermore, the World Economic Forum named EI as a core work-related cross-functional skill, which is projected to be number six in a review of top ten skills needed by all employee in 2020 (Kivland, 2018).

The healthcare market in Northeast region is fiercely competitive. To maintain the top seat and achieve the ranking of the number one academic medical center in the country in U.S.



News and World Report requires effective leadership. In literature, the significance of a high level of EI in industry leaders related to effective leadership style is well documented (Goleman, 2004). However, there remains a gap in the literature around leaders in healthcare.

Understanding the nurse leader's EI and how it relates to TL presents opportunities to translate theory into nursing practice. Emotional intelligence correlates with a nurse leader's resiliency, improved patient outcomes, and the achievement of organizational goals (Tyczkowski et al., 2015). Also, various leadership styles impact the workforce related to employee satisfaction, performance, retention, and outcomes with TL thought to be the most effective style (Spano-Szekely et al., 2016).

The significance of this study was to discover the level of EI and its association to leadership style in the nurse leaders at our organization. We strived to add to the existing body knowledge in nursing literature about EI and TL style and discover a nurse leader's attitude toward further education to improve their EI. Through the gained knowledge about EI, our study may promote future hiring practices by nurse recruiters to include screening for EI in prospective new nurse leaders and identify those leaders who are current or aspiring transformational leaders.

## **Literature Review**

### **Search Strategy**

A number of search databases were used in January 2018 and November 2018 to identify research studies around the association between EI and TL in nurse leaders. The goal of this search strategy was to find research articles published after 1990 to the current date to be used as a body of knowledge to guide this research study. The computer databases employed for the search included CINAHL, OVID/Medline, Scopus, and the Internet using keywords such as *emotional intelligence, nurse manager, leadership, transformational leadership* and the Boolean

term “AND.” Furthermore, a research librarian was consulted to identify key phrases and to locate valid and reliable instruments to measure EI and TL for this research study.

### **Inclusion and Exclusion Criteria**

The inclusion criteria for the studies in this literature review were: 1) Emotional intelligence 2) Transformational Leadership 3) Leadership Style, and 4) Nurse Managers. No exclusion criteria were instituted for this search.

### **Synthesis of Literature**

Mayer, DiPaolo, and Salovey (1990) initially presented the concept of EI as a social intelligence which differs from intellect. The authors described the concept as, “the accurate appraisal and expression of emotions in oneself and others and the regulation of emotions in a way that enhances living” (p.772). Researchers categorized EI as either a trait, an inherent quality that promotes well-being (Petrides, & Sevdalis, 2009) or an ability, to understand and regulate emotions (Mayer et al., 1990). Goleman (1998) popularized EI as an attribute of high performing leaders who demonstrated behaviors such as “self-awareness, self-regulation, motivation, empathy and social skill” (p.88). He connected the theory of EI to job performance by describing high performing leaders as individuals with high levels of EI who demonstrate the ability to understand employee’s feelings, manage one’s own emotions, and to be considered trustworthy by subordinates. The leaders with high EI comprehended the political and social principles within an organization (Batool, 2013). Lastly, experts in the realm of EI, contend that components of EI such as empathy, self-possession, and self-awareness are the bedrock for a visionary, transformational leader (Goleman, Boyatzis, & McKee, 2001).

### **Emotional Intelligence and Leadership in Industry**

In many research articles, the concept of EI and how it relates to job performance, sports, academics, and leadership is well documented. A meta-analysis by Laborde, Dosseville, and Allen, (2016) examined the relationship between EI and athletic performance. The researchers found that EI was a significant trait in both athletes and their coaches. A capable coach with a high level of EI grasps the importance of adapting their coaching style based on their athlete's emotions. Empathy and the ability to create a positive environment were noted to be essential elements of a coaches EI.

A meta-analysis by Harms and Crede (2010) reviewed EI, TL, and transactional leadership using 62 studies in their analysis. The sample in the analysis consisted of coaches, principles, clerics, nurses, supervisors, and student leaders. The results showed that trait EI using a self-reporting instrument showed a strong correlation between EI and TL for leaders in management positions and above.

Kamal et al. (2018) studied the level of EI and leadership style among 198 deans at a university in Malaysia. The researchers used social skills, motivation, self-regulation, self-awareness, and empathy as facets of EI which were measured using the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF). To measure TL, the researchers administered the Leadership Multifactor Questionnaire (MLQ). The results demonstrated a moderate relationship between EI and TL among deans ( $r = 0.34, p < .001$ ). Kumar (2014) linked EI to TL noting a positive relationship between elements of EI such as self-awareness, empathy, and motivation to TL traits such as individual influences, individualized consideration, and inspirational motivation.

Lastly, Palmer, Walls, Burgess, and Stough (2001) used the Trait Meta-Mood Scale which measures the ability to reflect on and manage one's own emotions and that of others and the MLQ to measure leadership style on a sample of 43 managers at a university-based innovation company. The outcome displayed a relationship between the components of EI and TL. Individualized influence ( $r = 0.44, p < .01$ ), inspirational motivation ( $r = 0.42, p < .01$ ), and individual consideration ( $r = 0.55, p < .01$ ), subsets of TL positively correlated with emotional monitoring facet of EI. This study along with others demonstrated that high levels of EI correlate to TL style in various environments suggesting that EI may be an important component of successful leadership (Palmer et al., 2001).

### **Emotional Intelligence and Transformational Leadership Style in Nurse Leaders**

Independently, the concept of EI and TL in the literature delineates the essential attributes of an effective leader. However, there is limited nursing literature related to the relationship between the two concepts in nurse leaders. Furthermore, there were no studies identifying nurse leaders desire to learn more about the concept of EI nor strategies to improve the skill.

In an exploratory study, Prufeta (2017) examined the level of EI in 38 nurse managers in a large academic medical center in the Northeast. Prufeta (2017) defined EI as the ability to recognize the emotions in oneself and others and to use the knowledge to direct thoughts and behaviors. Prufeta (2017) used the Maye-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (version 2), an ability model which measures four factors of EI: the perception, understanding, managing, and facilitation of emotions. The MSCEIT contains 141 items with documented reliability and validity “( $r = 0.93$ ) for general and 0.91 for expert consensus with a Cronbach's  $\alpha$  of .79” (Prufeta, 2017, p.136). An analysis of variance (ANOVA) was used by the researcher to evaluate mean EI scores between groups. Based on the results of the MSCEIT and a

demographic tool, the researcher found that the overall EI mean score was a low average, 96.65(SD15.11). There was no statistical difference between gender, age, and certification related to EI. Statistical significance was noted for year experience and education level. Nurse managers with three to five years' experience had higher EI scores compared to nurse managers with less than two years' experience and nurse managers with a master's degree in nursing scored higher compared to less experienced nurse managers including those with master's degrees in other fields (Prufeta, 2017).

Tyczkowski et al., (2015) used the EQ-*i* 2.0, to measure EI and the Multifactorial Leadership Questionnaire (MLQ-5X) to determine leadership style in 128 nurse managers in an Illinois and Wisconsin healthcare organization. The EQ-I 2.0 measured emotional intelligence and coping skills based on the results of the 133 items 5-point Likert scale. The MLQ-5X was a 45-item survey with established reliability and validity which measured leadership style including; transformational, transactional, and Laissez-Faire leadership styles. The subscales used to measure transformational leadership were "idealized attributes, idealized behaviors, inspirational motivation, intellectual stimulation, and individualized consideration" (Tyczkowski et al., 2015, p.174). The results were calculated using the mean scores for demographic variables and MLQ-5X scales. The researchers reported 49.1% of the participants scored higher than average on the EI score and that EI explained the 44% variance ( $R^2$ ) in transformational leadership style compared to the other leadership styles denoting a strong correlational between EI and TL.

Spano-Szekely et al. (2016) found a positive correlation ( $r = 0.47, p < .001$ ) between EI and TL in a sample of 148 nurse managers from acute care units in U.S. hospitals using a convenience sample obtained at a 2014 Magnet conference. The instruments used to measure EI

was the TEIQue-SF, a self-report 30 item questionnaire which measures facets of trait EI using a 1- to 7-point Likert scale and the MLQ-5X to measure leadership style. The global trait EI score was calculated and correlated with the MLQ-5x score.

Lastly, Echevarria et al. (2017) in a predictive correlation study used a sample of 148 nurse managers recruited from the American Organization of Nurse Executives (AONE) listserv to measure their level of EI and TL. The nurse managers were from various healthcare settings across the U.S. Echevarria et al. (2017) found a significant relationship between EI and TL ( $r = 0.59, p < 0.001$ ) using the Genos Emotional Intelligence Inventory and the MLQ-5X. Both instruments were used widely in research with noted high reliability and validity.

This literature review suggested that there is an association between EI and TL in participants recruited at conferences and through a professional nursing organization listserv. However, the review identified a gap in knowledge around the level of EI and leadership style in nurse leaders at large academic medical centers. There was no evidence to support nurse leaders' desire to learn more about increasing their knowledge or practices around EI or methods to promote learning. Furthermore, there is a gap in the literature that promotes the use of EI and TL scales by nurse recruiters to evaluate current or potential new leaders. Components of EI related to TL promotes an empowering culture with high levels of motivation, quality outcomes, and efficiency, all critical driver in the success of a healthcare organization.

### **Theoretical Framework: Trait Emotional Intelligence Theory and Transformational Leadership Theory**

#### **Trait Emotional Intelligence Theory**

According to Siegling, Vesely, Petrides, and Saklofske (2015) Trait EI Theory has been recognized as a psychological assessment model for various industries including, health,

business, and education. The Trait EI Theory is an individual's perception of their emotional realm (Petrides & Furnham, 2003). It is an assemblage of self-reflective emotional insight and personal character examined through a self-report. The Trait EI Theory employs four components and their subscales which include, "Well-being (self-esteem, trait happiness, and trait optimism), Self-Control (emotion regulation, stress management, and low impulsiveness), Emotionality (emotion perception trait empathy, emotion expression, and relationships), Sociability (assertiveness, emotion management, and social awareness)" (Petrides, 2001; Siegling et. al., 2015, p.526).

### **Transformational Leadership Theory**

Transformational Leadership Theory (TLT) explains the relationship between a leader and his/her followers. Transformational leaders inspire exceptional performance to achieve high outcomes (Yammarino & Dubinsky, 1994). Transformational Leadership Theory highlights the leader's ability to place the needs of the team, unit, and organization before himself/herself. They inspire followers to move beyond standard goals to work to their potential (Yammarino & Dubinsky, 1994). The operational definitions of the dimensions of TLT are charisma, intellectual stimulation, and individualized consideration. Charisma encompasses the subscales individualized influence and inspirational motivation, which portrays a leader who acts as an ethical role model to energize his/her followers with the ability to translate the purpose of his/her vision. Intellectual stimulation is a leader who empowers his/her followers to question traditional methods and seek innovative solutions to problems. Individualized consideration is a leader who responds to followers based on the individual needs of the follower and works with the follower to achieve their maximum potential (Bass, Avolio, & Jung, 1999; Harms & Crede, 2010).

Components of Trait Emotional Intelligence Theory align with dimensions of TLT to drive the development of this project. Factors of trait EI, which include, social skill, optimism, self-awareness, and self-regulation link to dimensions of transformational leaders such as influence, individual consideration, and motivation (Kumar, 2014). Transformational leaders influence, inspire, motivate, and empower followers. Through the use of emotional management and social mindfulness, they motivate others. Transformational leaders create a sense of optimism which energizes followers (Kumar, 2014).

Using the global mean scores for EI and TL measured by TEIQue-SF and MLQ-5X, our project operationalized the elements of Trait EI Theory and TL to determine if there was a relationship between EI and TL in a sample population of nurse leaders at our organization.

### **Study Variables**

The main variables for our study were EI and TL. Trait EI can be defined as, “a constellation of emotion-related self-perception located at the lower level of personality hierarchy” (Petrides, 2009, p. 12). Transformational leadership is a leadership style that inspires and motivate employees toward organizational change through shared vision and values (Avolio & Bass, 2004). (Table 1).

We also collected demographic variables on age, gender, level of education, number of years as a nurse leader, specialty area, EI training within the last year, ability to define EI, belief about EI training and education, and the preferred method of learning (Table 1).

### **Methods**

#### **Research Design**

We used a descriptive-comparative survey design. There were two reasons for selecting this design. First, the descriptive-comparative survey was used to make inferences about the



relationship between the level of EI and TL in nurse leaders at a Northeast academic medical center. Second, it was the preferred method of data collection for convenience, cost-effectiveness, and the rapid return rate enabling the researcher to complete the study within the proposed timeframe.

### **Sample**

We obtained a convenience sample of nurse leaders at a Northeast academic medical center between September 1, 2018 and November 30, 2018. There were over 120 nurse leaders within the organization. Nurse leaders at our institution are required to have a minimum education level of a baccalaureate degree with a certification in their specialty area. We defined nurse leaders as clinical nurse managers, nurse administrators, patient care directors, and directors of nursing with at least one-year experience in leadership.

Clinical nurse managers are the first level of leadership responsible for the managing the delivery of patient care on their assigned unit, accountable for facilitating patient throughput, unit-based quality and safety initiatives, and cost-effective daily operations. Patient care directors (PCD) are responsible for the 24-hour daily total management of a designated unit. The PCD sets goals and objectives that are in alignment with the organizational strategic plan. They are fiscally responsible for managing cost-effective operations. They monitor staff performance, and system improvement initiatives to improve patient outcomes. Nurse administrators are responsible for the clinical operations of the nursing departments on assigned shifts (evenings, weekends, and holidays) to safeguard the continuity of patient care. They act as consultants to staff, patients, and nursing leadership. Directors of nursing are responsible for the planning, coordinating, and directing of clinical nurse services. The director of nursing mentors the nursing leaders of each unit and monitors the quality of patient care to ensure that it meets the regulatory requirement

and standards of care outlined by the organization. They determine clinical practices and methodologies within their departments in consultation with senior leadership and support participation in nursing research at all levels of the organization.

### **Sample Size**

Previous studies reported a positive association between EI and TL. The study by Spano-Szekely et al., (2016) reported a positive correlation between EI and TL in a sample of nurse managers using the TEIQue-SF and MLQ-5x instruments ( $r = 0.47, p < 0.001$ ). Echevarria et al. (2017) found a significant relationship between EI and TL ( $r = 0.59, p < 0.001$ ) in nurse managers from a variety of healthcare care settings. Therefore, the statistical test used to calculate the sample size was a correlation bivariate normal model using G Power analysis based on previous research results. A two-tailed test using a medium Cohen's effect size for Pearson  $r$ , ( $r = 0.45, \alpha = 0.05, (1 - \beta = 0.80)$ ) was adequate to calculate the minimum sample size for this study. The minimum sample size necessary for a significant result was 33 participants. To reduce risk of erroneous and incomplete data and ensure a significant rate of return, 127 surveys were sent out to our nurse leaders via an email with a link to Qualtrics, a web-based survey platform.

Participants included in our study were 1) clinical nurse managers 2) patient care directors 3) directors of nursing 4) nurse administrators, and 5) at least one-year experience as a nurse leader. Participants excluded from our study were 1) non-nurse managers, 2) chief nursing officers 3) a nurse leader with whom the principal investigator had direct oversight, and 3) chief nurse executive.

### **Recruitment**

We recruited participants through emails and word of mouth for three months. An email was sent using the organization's listserv for nurse leaders explaining the purpose of the study,

implied consent, and instructions for completing the demographic survey, TEIQue-SF, and MLQ-5x survey using a Web-based platform, Qualtrics.

### **Setting**

Our study took place at a large academic medical center in the Northeast. The medical center provides inpatient, ambulatory, and preventive care in all areas of pediatric and adult medicine to the 870,000 people who live in the medical center's service area and beyond. The medical center has greater than 2 million patient visits yearly, 15,000 infant deliveries, and more than 310,000 emergency department visits. There are over 6,500 affiliated providers with experts in every field of medicine and dentistry and more than 20,000 employees. The medical center is a National Cancer Institute-designated cancer center and has an internationally renowned cardiac program. The children's hospital is one of the largest in the region with pediatric subspecialties which include neonatology, cardiology, oncology, and an international referral center for children with complex needs.

### **Instruments**

**Demographic survey.** We used three different surveys to collect data in our study. The demographic data included, age, gender, level of education, number of years as a nurse leader, specialty area (pediatric or adults), and EI training within the last year. Three items assessed a nurse leader's ability to define EI, their belief about whether education and training could increase their level of EI, and their preferred method of learning. The demographic items took approximately 10 minutes to complete.

**Trait Emotional Intelligence Questionnaire -Short Form (TEIQue-SF).** The instrument we used to measure trait EI in nurse leaders was the TEIQue-SF. The TEIQue-SF is approved for academic research purposes. The TEIQue-SF, derived from a more extended survey

version was developed by Petrides (2001) to measure trait EI using four EI subscales, which are divided into fifteen facets scores to calculate an overall global EI trait score.

The instrument is a 30- item survey with two questions per facet. It takes approximately 5 minutes to complete the questionnaire. A 7-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree) measured the four subscales of trait EI, which included emotionality, self-control, sociability, and well-being. (Siegling et al.,2015). Scores are derived from the four subscales (15 facets) to calculate the global EI trait score. All of the scores are summed up and divided by the total number of items to report and analyze a global score for trait EI.

The mean scores were based on a normative sample, which was composed of 1721 participants in a study by Petrides, (2009). A high mean score ranging from 5.53 to 5.97 signifies attributes of EI including, flexibility, assertiveness, the ability to accurately express and control one's feelings and that of others, attentiveness, and empathy. A low mean score ranging from 4.13 to 4.76 suggests difficulty to adjust to change, inability to say no, introversion, lack of self-confidence, and overwhelmed with other's emotion (Petrides, 2009). In Petrides' study (2009) the mean score for global trait EI (30 items) was  $5.11 \pm 0.89$  with a Cronbach's alpha of 0.88. In our study, the global EI trait score was used as the measure of EI. To calculate the global EI trait score, a total of 15 items were reverse coded before analysis, (7=1), (6=2), (5=3), (3=5), (2 = 6), and (1= 7). The recoded items included items 2, 4, 5, 7, 8, 10, 12, 13, 14, 16, 18, 22, 25, 26, and 28.

The reliability and validity of the instrument were demonstrated in many studies (Petrides, 2009). Spano-Szelkely et al., (2016) used the instrument in a study sample of 184 nurse managers. The authors reported excellent reliability, with a Cronbach's  $\alpha = .86$  for the

global trait EI score. The validity of the instrument was demonstrated by its use in numerous studies, in several countries, and various settings. In two studies to assess the validity of the TEIQue-SF, Cooper and Petrides (2010) used the item response theory to measure the psychometric properties of the TEIQue-SF. The first study used the original form of TEIQue in a sample of 1,191 individuals. In the second study, the TEIQue-SF was used in a sample of 866 individuals. In both studies, the sample populations were recruited from the university campuses and the general community. The results indicated that the TEIQue-SF had excellent psychometric properties (Cooper & Petrides, 2010).

**Multifactor Leadership Questionnaire – 5X.** The instrument we used to measure TL is the MLQ-5X. The instrument, developed by Bass and Avolio (2004), was derived from earlier models. The MLQ-5x is a 45-item questionnaire that measures transformational, transactional, and Laissez-Faire leadership styles using a five-point Likert scale ranging from 0- not at all to 4- frequently if not always. It takes on average 15 minutes to complete. Researchers widely use the MLQ-5X. The factor structure has been validated by discriminatory and confirmatory factor analysis (Bass et al., 1999). Reliability has been established using a nine-sample dataset (n = 2,154), which reported a reliability score ranging from 0.74 to 0.94 for the total score and the individual leadership items (Bass & Avolio, 2004).

Six domains of leadership style, ranging from a lack of leadership style to transformational leadership style, are operationally defined and measured using the MLQ-5X (Bass & Avolio, 2004). For the purpose of our study, the mean score for the 20 items measuring the four subscales for transformational leadership was used. The subscales were; idealized influence (idealized attributes and idealized behavior), inspirational motivation, intellectual stimulation, and individualized consideration. Idealized influence measures the ability of leaders

to be self-sacrificing, going beyond their own needs for the benefit of others. Inspirational motivation represents a leaders' ability to motivate and inspire his/ her followers' and encourages them to take on challenges creating an environment of optimism and enthusiasm. Intellectual Stimulation reflects the frequency with which the leader encourages followers to become innovative with their problem solving and solutions. Individualized consideration demonstrates the extent of personal attention and encouragement for self-development a leader gives to his/her followers. The TL mentors the follower to achieve their highest level of ability (Bass & Avolio, 2004). To operationalize TL, the MLQ-5X measures the mean score for the subscales of transformational leadership, transactional leadership, and passive/avoidant in full range leadership using a Likert scale ranging from 0-to 4- point "not at all" (0) to "frequently, if not always" (4) in each of the subscales. The responses in each item of the TL subscales are summed up and divided by the total number of responses in the subscale to achieve the mean score for the subscale.

Scores for TL are compared to the norm table included in the MLQ-5X manual. The norm score uses a percentile ranking indicating the normed population score (Bass & Avolio, 2004). The total mean score for the 20 items of TL is calculated from the average scores for individualized attributes and individualized behavior, inspirational motivation, intellectual stimulation, and individualized consideration. The mean TL score for the self-rater MLQ-5X ranges from 2.05 at the 5th percentile to 3.9 at the 95<sup>th</sup> percentile (Bass & Avolio, 2004). A higher mean score implies that the leader exhibits behaviors and attitudes characteristic of a TL while lower mean scores are associated with a decreased link to TL characteristics. The items in each of the subsets, idealized attributes (item number 10, 18, 21, and 25), idealized behavior (item number 6,14,21,and 34), inspirational motivation (item number 9, 13, 26, and 36),

intellectual stimulation (item number 2, 8, 30, and 32), and individualized consideration (item number 15, 19, 29, and 31) used to calculate the total mean score for TL does not require reverse coding.

Licensing does not permit the reproduction of the entire MLQ instrument in this report. However, licensing permitted the reproduction of the instrument for submission to the Institutional Review Board for approval.

The decision to use the specific instruments to measure EI and TL in our project was based on brevity, reliability, validity, cost, and ease of use. The instruments measured the operational definition of both EI and TL. The scientific community widely accepts these research instruments based on their use in various studies and a variety of environments. Both instruments were used independently in research measuring EI and TL in nurse managers with two studies utilizing both instruments to measure EI and TL in nurse managers affiliated with a professional organization (Spano-Szekely et al., 2016; Tyczkowski et al., 2015). We believed that the global EI trait mean score from the TEIQue-SF and the mean score from the 20 items measuring TL from the MLQ-5X were appropriate instruments to measure the components of EI and TL in nurse leaders at our organization.

### **Data Collection Procedure**

Data collection was performed by the student investigator. Eligible participants were identified by the student investigator based on the criteria outlined in the inclusion and exclusion criteria. An email was sent to eligible participants with a link to a web-based survey, Qualtrics, using a respondent anonymity option. Qualtrics provided the platform for the demographic survey, TEIQue-SF, and MLQ-5x.

The email was sent using a leadership email listserv to 127 eligible participants in August 2018 that included an explanation of the study, implied consent, and instructions for completing the survey. A series of subsequent reminder emails, same as the original email, was sent out by the student investigator in September, October, and November 2018 to promote survey participation. The online survey responses were monitored weekly by the student investigator to determine the number of respondents until the minimum number of respondents was achieved. The data were stored in the student's investigators single user-dedicated password-protected computer, in the program, Qualtrics, which required a student investigator login and protected password to access the survey results until the close of the study. A pilot study was conducted using three participants to test the functionality of the survey to ensure that the surveys and links performed as intended. The data from the pilot were not used in the final data analyses.

### **Data Analysis Plan**

The raw data from the demographic, TEIQue-SF, and MLQ-5X survey were collected and downloaded through the use of the web-based platform, Qualtrics, to be stored and analyzed using SPSS 24 Version software (IBM). Ten percent of the data entry from Qualtrics into SPSS was appraised by a secondary investigator at our university to ensure the accuracy of the data entry download. No discrepancies or inaccuracies were found.

We performed descriptive statistics on each sample characteristic variable analyzing the frequency and percent. The mean score, SD, range, and Cronbach's alpha were calculated for the total score of EI and TL.

To assess research question 1, a Pearson's  $r$  correlation was calculated on the mean scores of the TEIQue-SF for global trait EI and the mean scores from the MLQ-5x survey for TL. To assess research questions 2, 3, and 4, the frequencies and percentages were calculated for the



ability to define EI accurately, belief that EI education would increase the level of EI, and preferred learning methods.

### **Ethical Considerations**

Our study was deemed as exempt by our academic medical center's Institutional Review Board and the George Washington University Institutional Review Board. Participation in the study was voluntary. Anyone with whom the student researcher had direct oversight was excluded from taking the survey. The data collected using the Qualtrics option for respondent anonymity was selected to prevent identifiable links to participants.

### **Results**

#### **Instrument Reliability**

As an evaluation for internal consistency reliability, we ran a Cronbach's alpha for the total mean score of the TEIQue-SF and the mean score measuring TL for the MLQ-5X based on the responses from the 56 participants completing the survey. The Cronbach's alpha reliability coefficient for the total global mean score of the thirty items for EI was .84 and the total mean score of the subsets for TL was .85 indicating high reliability for both surveys (Table 2).

#### **Demographic Characteristics of Respondents**

A total of 56/127 nurse leaders completed both surveys for a response rate of 44%. No surveys were eliminated. The sample was diverse (Table 3) with respect to the age of the participants with the majority  $22 \leq 40$  years ( $n = 18$ , 32.1%) and  $40 \leq 55$  years, ( $n = 26$ , 46.4%). Females accounted for the majority of the sample at 85.7% ( $n = 48$ ). The highest level of education completed by most participants was a Master's degree at 78.6% ( $n = 44$ ) with greater than ten years of experience as the most frequently reported number of years as a nurse leader

( $n = 24$ , 42.9 %). The majority of the participants worked in the adult setting ( $n = 34$ , 60.7%) and had not received EI training in the last year ( $n = 39$ , 69.9%).

### **Study Outcomes**

The total mean score for EI and TL was derived from the TEIQue- SF and the subscales for TL in the MLQ-5x (Table 4). The total mean score for EI in our study was 5.69 ( $SD = .51$ ) indicating that the participants scored within the high mean range for EI (5.53 to 5.97). The total mean score for TL subscales was 3.25 ( $SD = .35$ ) indicating that the participants in our study scored higher for attributes of TL than 60% of the general US population (Bass & Avolio, 2004).

A Pearson's  $r$  correlation coefficient was calculated using the global mean score for EI and TL using the TEIQue-SF and MLQ- 5X examining the relationship between EI and TL among our sample of nurse leaders. A moderate, positive, significant correlation was found ( $r = .523$ ,  $p < .001$ ; Table 4) indicating that our nurse leaders' degree of EI was positively related to their level of TL.

To answer questions 2, 3, and 4, the majority of the participants were unable to accurately define EI ( $n = 42$ , 75%). However, most respondents believed that an increase in EI education and training would increase their EI ( $n = 45$ , 80.4%). The most frequently reported preferred method of learning was classroom learning ( $n = 31$ , 55.4%) over simulation learning or online learning modules (Table 5).

### **Discussion**

We assessed the level of EI and TL in our nurse leader participants. Our respondents measured well above the mean score for EI and TL compared to the general population. The results signified that the nurse leaders in this sample perceived themselves as possessing a high level of trait EI and attributes consistent with a TL style.

We also assessed whether there was an association between EI and TL in nurse leaders at our academic medical center in the Northeast. The results of our study demonstrated a significant moderate, positive correlation between EI and TL in nurse leaders. The strong correlation between EI and TL in our sample may be associated with our nurse leaders previous experience or level of education. The majority of our leader respondents had a Master's degree or higher and greater than ten years' experience in a leadership role.

The generalizability of our study supports the findings of a meta-analysis by Harms and Crede (2010). The meta-analysis found that there was a moderately positive correlation between EI and TL in a variety of leaders from various industries including religious, academic, and medical organizations. Our findings were consistent with previous research by Spano-Szekely et al. (2016) and Echevarria et al. (2017) whose research results revealed a significant positive correlation between EI and TL in nurse managers at a Magnet conference and an AONE listserv, respectively. The positive correlation between EI and TL reported in our findings and those of others establish the generalizability of the findings from a variety of samples of nurse leaders in various settings. Regardless of the setting, nurse leaders' level of EI relates to the essential components of a successful TL style (Spano-Szekely et al., 2016, Echevarria et al., 2017; Tyczkowski et al., 2015).

Our study demonstrated that the majority of the participants were unable to accurately define trait EI. Similar to findings by Tyczkowski et al. (2015), our nurse leaders scored above average for the mean score for EI and TL even though the majority of nurse leaders reported in both studies did not have previous EI training. The high scores for EI and TL in our study may be related to leadership training that was not primarily focused on the definition of EI or training that increased a nurse leader's level of EI. However, the training may have included facets of

both EI and TL in the leadership curriculum and annual leadership competency training offered through the nursing education and the division of professional development at our organization.

We did not assess a nurse leader's natural high level of EI or how it relates to a gravitation to leadership positions. Goleman (1998) speculated that EI is both innate as well as cultivated. He believed that some level of EI exists in all leaders. Goleman proposed that EI could be enhanced in all leaders through the development of a curriculum based on the limbic system, a system that focuses on learning through motivation, practice, and feedback from mentors or coaches. Akin to Goleman's theory, our nurse leaders believed that education training would increase their level of EI.

We found no previous studies that identified a preference related to the learning method to increase EI. The classroom was the preferred learning method to increase EI in our nurse leaders. A classroom preferred learning method reported by our respondents may be a result of the highly engaged nurse educators within our organization who offer interactive classroom training for our nurse leaders or perhaps generational differences in preferred learning methods.

### **Limitations**

We identified study limitations related to the sample, the instruments, and previous training. The convenience sample of nurse leaders was limited to one organization in the Northeast and thus, may not be representative of the population of nurse leaders across the U.S. limiting generalizability and transferability of the study findings. The instruments used to measure EI and TL were self-rating instruments. The self-rating instruments measure an individual's perception of one's self which raises a concern for response bias. A more comprehensive assessment of EI and TL in a nurse leader would incorporate additional rater's similar to 360-degree assessment techniques which gathers input from a leader's peers, direct

reports, managers, and customers (Bass & Avolio, 2004). Our study did not investigate whether nurse leaders in our sample had previous TL training. Previous TL training may impact the results of the overall score for TL (Martin, McCormick, Fitzsimons, & Spirig, 2012). Furthermore, our study did not explore additional preferred methods of learning other than the three investigated in this study.

### **Implications and Recommendations for Practice, Policy, and Research**

The results of our study will be disseminated at nursing leadership forums such as the campus director's meeting, Professional Research and Evidence-Based Practice Council within the organization as well as nursing research and nursing leadership conferences in the mid-Atlantic area. The purpose of disseminating our findings is to emphasize the importance of EI and TL in nurse leaders and the benefits of developing nurse leaders' level of EI and TL to a healthcare organization.

Our study promotes the need for professional development and competency training by the division of nursing education to increase EI in nursing and organizational leadership specifically addressing how EI relates to TL. We recommended that the division of nursing education design a curriculum that incorporates EI and TL education and training at the time of hire and periodically after that to continue to increase a leader's level EI in pursuit of TL. We recommend that a nurse leader's annual performance review reflect levels of EI and TL in order to identify leaders who are candidates for professional advancement or to lead organization-wide projects focusing on improving patient outcomes and patient experience.

The results of our study added new knowledge to nursing literature about EI and TL in nurse leaders. Ours is the first study to examine a nurse leader's ability to accurately define EI and a nurse leader's preferred method of learning to increase EI. Furthermore, our study

highlights an opportunity to explore additional learning methods to increase EI and subsequently TL.

We propose that our nurse recruiters and human resource associates assess the level of EI and TL at the time of hire and throughout a leader's tenure to ensure that EI continues to develop and strengthen. Also, exploring the use of multiple-rater strategies to assess EI in nurse leaders may be beneficial offering the perspective from colleagues, followers, and superiors. Prospective leader applicants may be evaluated by using a survey that targets characteristics of leadership styles desired by healthcare organizations. Studies investigating the use of EI screening as a measure of leadership potential by the department of human resource and nursing recruitment may be useful as a vehicle to implement new hiring practices to recruit top leaders.

In addition to TL, EI is reported to be associated with other leadership styles such as ethical leadership (Jambawo, 2018). Jambawo (2018) investigated the relationship between EI and ethical leadership style citing that the principles of an ethical leader are founded in behaviors such as honesty, respect, and virtue. Future research exploring the relationship between EI and other leadership styles may further contribute to the body of nursing science.

### **Sustainability**

Targeted efforts for sustainability will be focused on hiring practices to screen for attributes of EI and TL in future leaders and around continued education and training to increase EI and TL in current leaders. Screening instruments, continuous education curriculum development, and leadership education and training will incur costs potentially impacting sustainability. The relationship between EI and TL and how it relates to improved patient outcomes and employee engagement is well documented in the literature. Therefore, in order to sustain recruitment practices using EI assessment tools, and promote continued education and

training of our nurse leaders to increase EI, a comprehensive understanding of the relationship between EI and TL must be embraced by our organization's senior leadership.

### **Conclusions**

In today's healthcare environment, the TL style has been identified as a leadership style that supports the vision, mission, and values of healthcare organizations. In our study, a nurse leader's level of EI was positively correlated to TL. This relationship signified that nurse leaders at our organization perceive themselves as possessing traits of EI and TL. Most nurse leaders were unable to accurately define EI but believed that training and education could increase their level of EI. Future research around organizational hiring practices utilizing EI assessment tools to recruit top talent and enhancing nursing leadership competencies for EI and TL will support the organization's mission and vision to advance healthcare and improve patient outcomes.

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Table 1

Variables, Measure of Variable, and Theoretical and Operational Definitions

Variables	Measure of Variables	Theoretical Definition	Operational Definition
Independent Variables			
Emotional Intelligence	Interval	<p><b>TEIQue-SF</b></p> <p><b>Global Mean Score</b> The global mean score for EI by the respondents measures four subscales with 15 facets. The global mean score reflects an individual's self-perception of emotional abilities and behaviors.</p> <p>The mean score is calculated by summing up the total score of the items and divided by 30 which is the total number of items in the instrument. A high mean score indicates that an individual perceives themselves as possessing a high level of trait EI. The average score is 3.5. A total of 30 items are measured using a 1-to 7- point Likert scale ranging from completely disagree to completely agree.</p>	<p>1 = completely disagree</p> <p>2=</p> <p>3=</p> <p>4=</p> <p>5=</p> <p>6=</p> <p>7= completely agree</p>

Dependent Variable			
Transformational Leadership	Interval	<p><b>The MLQ-5X</b></p> <p>The MLQ-5X measures the mean score for the subscales of transformational leadership, transactional leadership, and passive/avoidant in full range leadership</p> <p><b>Transformational leadership</b> is a leadership style that inspires and motivate employees toward organizational change through shared vision and values. A high score in each subscale of TL reflects the attributes of a transformational leader.</p> <p>Transformational Leadership mean score is measured using a Likert scale ranging from 0-to 4-point “not at all” (0) to “frequently, if not always” (4) in each of the subscales.</p> <p>The responses in each item of the subscales are summed up and divided by the total number of responses in the subscale to achieve the mean score for the subscale.</p>	<p>0 = Not at all  1 = Once in a while  2 = Sometimes  3 = Fairly often  4 = Frequently, if not always</p>

Transformational Leadership-	Interval	<p><b>TL Subscale 1</b></p> <p><b>Idealized Influence</b> measures the ability of leaders to be self-sacrificing, going beyond their own needs for the benefit of others.</p> <p><b>Facets:</b>  <b><i>Idealized Attributes (IIA)</i></b>  A high mean score reflects the TL ability instill pride in his /her followers. The leader places the team ahead of his/her individual needs.</p> <p><b><i>Idealized Behaviors (IIB)</i></b>  A high mean score indicates that the TL communicates beliefs, values and purpose. They consider ethical and moral consequences of decisions.</p> <p>Idealized Influence (IIA, IIB) mean score is measured using a 0-to 4- point Likert scale ranging from “not at all” (0) to “frequently, if not always” (4).”.   A total of eight items measure idealized influence with four items per facet.</p>	<p>0 = Not at all  1 = Once in a while  2 = Sometimes  3 = Fairly often  4 = Frequently, if not always</p> <p><b>IIA</b></p> <p>A low mean score of 2.50 for IIA indicates that 80% of the normal U.S. population scored higher in this subscale and 20 % scored lower. A high mean score of 3.75 indicates that 5% of the normal population scored higher in this subscale and 95% scored lower.</p> <p><b>IIB</b></p> <p>A low mean score of 2.50 for IIB indicates that 80% of the normal U.S. population scored higher in this subscale and 20 % scored lower. A high mean score of 4.00 indicates that 5% of the normal population scored higher in this subscale and 95% scored lower.</p>
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Transformational Leadership-	Interval	<p><b>TL Subscale 2</b></p> <p><b>Inspirational Motivation (IM)</b>  A high score in IM indicates that a leader motivates and inspires his/ her followers' and encourages them to take on challenges. The TL creates an environment of optimism and enthusiasm.</p> <p>Inspirational motivation (IM) mean score is measured using a 0-to 4- point Likert scale ranging from "not at all (0) to frequently, if not always (4)".</p> <p>A total of four items measure IM.</p>	<p>0 = Not at all  1 = Once in a while  2 = Sometimes  3 = Fairly often  4 = Frequently, if not always</p> <p><b>IM</b></p> <p>A low mean score of 2.50 for IM indicates that 80% of the normal U.S. population scored higher in this subscale and 20 % scored lower. A high mean score of 4.00 indicates that 5% of the normal population scored higher in this subscale and 95% scored lower.</p>
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Transformational Leadership-	Interval	<p><b>TL Subscale 3</b></p> <p><b>Intellectual Stimulation (IS)</b> A high mean score reflects the frequency with which the leader encourages followers to become innovative with their problem solving and solutions</p> <p>Intellectual stimulation (IS) mean score is measured using a 0-to 4- point Likert scale ranging from “not at all (0) to frequently, if not always (4)”.</p> <p>A total of four items measure IS.</p>	<p>0 = Not at all 1 = Once in a while 2 = Sometimes 3 = Fairly often 4 = Frequently, if not always</p> <p><b>IS</b></p> <p>A low mean score of 2.50 for IS indicates that 80% of the normal U.S. population scored higher in this subscale and 20 % scored lower. A high mean score of 3.75 indicates that 5% of the normal population scored higher in this subscale and 95% scored lower.</p>
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Transformational Leadership-	Interval	<p><b>TL Subscale 4</b></p> <p><b>Individualized Consideration (IC)</b> A high mean score in this subscale demonstrates the extent of personal attention and encouragement for self-development a leader gives to his/her followers. The TL mentors the follower to achieve their highest level of ability.</p> <p>Individualized consideration (IC) mean score is measured using a 0-to 4- point Likert scale ranging from “not at all (0) to frequently, if not always (4)”.</p> <p>A total of four items measure IC</p>	<p>0 = Not at all 1 = Once in a while 2 = Sometimes 3 = Fairly often 4 = Frequently, if not always</p> <p>A low mean score of 2.75 for IC indicates that 80% of the normal U.S. population scored higher in this subscale and 20 % scored lower. A high mean score of 4.00 indicates that 5% of the normal population scored higher in this subscale and 95% scored lower.</p>
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Demographic			
Gender	Nominal	The behavioral, cultural, or psychological traits typically associated with one's sex.	1 = Male 2 = Female
Age	Categorical	Age in years	1 = 22 < 40 2 = 40 < 55 3 = $\geq 55$
Education	Categorical	Highest level of education completed	1 = Baccalaureate 2 = Master 3 = Doctorate
Years as Nurse Leader	Categorical	Nurse leader will be defined as clinical nurse manager, patient care director, nurse administrator, and director of nursing with more than 1-year experience as a leader. The job title will not be specified in the demographic variable. (IRB)	1 = 1 < 3 2 = 3 < 10 3 = $\geq 10$
Area of Specialty	Nominal	Unit type	1 = Pediatrics 2 = Adults
EI training for nurse leaders within the last year	Nominal	The section that addresses EI in nursing leadership training including but not limited to; Talent Development classes, conference, "Lunch and Learn" sessions, journal articles, and graduate studies	0 = No 1 = Yes

EI Training Variables			
Ability to accurately define EI	Nominal	Trait EI defined as “a constellation of emotion-related self-perceptions and dispositions, assessed through self-report” (Petrides & Furnham, 2003, p. 40).	0 = No 1 = Yes
Nurse leaders believe that an increase in their education and training will increase their level of EI.	Nominal	Establish nurse leader beliefs about training and education around increasing their level EI.	0 = No 1 = Yes
Preferred learning method	Categorical	Online Learning Modules Simulation Learning Classroom Learning	1= Online Learning Modules 2 = Simulation Learning 3 = Classroom Learning

(Bass & Avolio, 2004; Petrides, 2009)

Table 2

*Mean, range, and Cronbach's alpha for total mean scores for emotional intelligence and transformational leadership scores*

Variable	Mean (SD)	Range	Cronbach's alpha
<b>Emotional Intelligence</b> (TEIQue-SF) total mean score (30 items)	5.69 (.51)	2.40	.84
<b>Transformational Leadership</b> (MLQ-5X) total mean score (20 items)	3.25 (.35)	1.40	.85

Table 3

*Demographic characteristics of the respondents*

Variable	Freq (%)
Age (Years)	
• 22 < 40	18 (32.1)
• 40 < 55	26 (46.4)
• $\geq 55$	12 (21.4)
Gender	
• Male	8 (14.3)
• Female	48 (85.7)
Education	
• Baccalaureate	6 (10.7)
• Master	44 (78.6)
• Doctorate	6 (10.7)
Years as Nurse Leader	
• 1 < 3	11 (19.6)
• 3 < 10	21 (37.5)
• $\geq 10$	24 (42.9)
Area of Specialty	
• Pediatrics	12 (21.4)
• Adults	34 (60.7)
• Both	10 (17.9)
EI training for nurse leaders within the last year	
• No	39 (69.6)
• Yes	17 (30.4)

Table 4

*Correlation between the total mean scores on emotional intelligence and transformational leadership surveys*

Variable	Mean (SD)	Pearson Correlation	p-Value
<b>Emotional Intelligence</b> (TEIQue-SF) total mean score (30 items)	5.69 (.51)	.523	<.001
<b>Transformational Leadership</b> (MLQ-5X) total mean score (20 items)	3.25(.35)		

Table 5

*Responses from nurse leaders regarding training variables*

<b>Variable</b>	<b>Freq (%)</b>
Ability to accurately define EI	
• No	42 (75)
• Yes	14 (25)
Nurse leaders believe that an increase in their education and training will increase their level of EI.	
• No	11 (19.6)
• Yes	45 (80.4)
Preferred learning method ***	
• Online modules	11 (19.6)
• Simulation	24 (42.9)
• Classroom	31(55.4)

\*\*\*Participants had an opportunity to select more than one preferred learning method.